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October 21, 1993

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, DC 20554

Re: *MM Docket No. 93-106*

Dear Mr. Caton:

I am writing on behalf of California Amplifier, Inc. ("Cal Amp") both to express Cal Amp's strong support for the compromise reached by the Wireless Cable Association International, Inc., the National ITFS Association, and the ITFS Parties to permit the implementation of channel loading, and to apprise the Commission of a recent technological development by Cal Amp that promises to bring the benefits of channel loading to the marketplace rapidly.

As the Commission is aware, channel mapping technology has proven to be an imperfect solution to the need of wireless cable operators for full-time commercial channels. Wireless cable system operators have consistently complained that channel mapping technology makes it impossible for consumers to videotape one program while watching another, to enjoy picture-in-picture features of new television receivers, or to receive multiple set service without undue expense. Cal Amp, which created the Beambender™ and is a leading provider of downconverters to the wireless cable industry, has developed a new, low-cost broadband addressable scrambling system that solves all of these problems. However, Cal Amp's technology will find little marketplace acceptance unless channel loading is permitted.

The problems associated with channel mapping stem from one simple fact -- it is unduly expensive to manufacture a device for installation at the consumer's residence that supports channel mapping and can simultaneously output all 31 channels in the 2.5 GHz band. In order for channel mapping to work properly, the programming transmitted over a given ITFS frequency must be directed at the subscriber's premises to the correct output channel.

Assume, for example, that ITFS channels A1 and A2 are mapped to create one full-time commercial channel and one full-time educational channel by using A1 from noon to midnight for educational programming, by using A2 from midnight to noon for educational programming, and by using each channel at all other times for commereial programming. Further assume that channel mapping is used to display the educational programming when the settop box is tuned to channel 70 at all times and to display the commercial programming when the settop box is tuned to channel 80 at all times. At the subscriber's residence, the settop box includes channel mapping circuitry that displays on channel 70 the input from A1 from noon until midnight, at which time it begins to display on channel 70 the input from A2 until noon. Conversely, the channel mapping circuitry is programmed to display on channel 80 the input from A2 from noon until midnight, at which time it begins to display on channel 80 the input from A1 until noon.

Channel mapping settop boxes accomplish this feat by taking the inputs from all 31 frequencies in the 2.5 GHz band and outputting just the one signal from the particular frequency that is appropriate for the channel to which the settop box is tuned at the particular moment. If the viewer has his or her settop box tuned to channel 80 and it is prior to noon, the signal transmitted on A1 is output; if it is after noon, the signal transmitted on A2 is output. It would be unduly expensive to develop channel mapping technology that takes the input of all 31 channels, maps each to the appropriate channel for output, and then passes a broadband signal comprising all 31 channels to the receiver.

Cal Amp has developed a low-cost addressable scrambling system that passes a broadband signal comprising all 31 channels, albeit without channel mapping. This system, which can be mounted outside the subscriber's premises on the wireless cable antenna mounting pole or even integrated into the downconverter, permits the output to be split so that multiple sets can be served without unduly expensive settop boxes. [1/] Moreover, because all 31 channels are being output by Cal Amp's system, videotape recorders can record one channel while another is being viewed and picture-in-picture features remain available to consumers. Cal Amp's new system will find little marketplace acceptance, however, so long as channel mapping is the only mechanism by which wireless cable operators can secure full-time commercial use of ITFS frequencies.

[1/]Using Cal Amp's system, no settop box will be required at a cable-ready set, and only an inexpensive, "plain vanilla" cable converter box or a video cassette recorder will be required at those sets that are not cable-ready.

The channel loading compromise before the Commission represents a well-balanced approach to the competing interests of wireless cable operators and educators. With technology such as that developed by Cal Amp, wireless cable operators will be able to employ channel loading to maximize the number of full-time commercial channels available to subscribers and eliminate the problems associated with channel mapping. Because technologies such as that developed by Cal Amp significantly reduce the capital cost of adding new subscribers, the adoption of channel loading will promote the emergence of wireless cable as an effective competitor in the marketplace. Moreover, while solving the problems associated with channel mapping, the compromise also assures that ITFS licensees transmit precisely the same amount of educational, instructional and cultural programming as they do under the current rules. The parties to the compromise are to be commended for their efforts, and the Commission is urged to implement that compromise as rapidly as possible.

Respectfully submitted

Paul J. Sinderbrand

Counsel to California Amplifier, Inc.

cc: Hon. James H. Quello
Hon. Ervin S. Duggan
Hon. Andrew C. Barrett
Roy J. Stewart
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